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SCHOLARLY COMMUNICATION TRENDS IN ENVIRONMENTAL SCIENCES DOCUMENTED IN WORLDCAT

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ABSTRACT

WorldCat which is an online library catalog, the collections of libraries in our scholarly community and thousands more around the globe. With the help of WorldCat, one can get access to various research articles as well as digital items that can be directly viewed or even downloaded for later use. The present study explores the accessibility and availability of the collection in the stream of Environmental Science indexed by WorldCat. The data collected from the WorldCat database pertaining to the field of Environmental Science, in the month of May, 2019 and was then analyzed using the quantitative techniques. The results showed that massive number of varieties of collection was available in the WorldCat pertaining to the field of Environmental Science. The results of the study revealed that majority (77.51%) of the records available are published in English language in the field of Environmental Science. Among the top most authors contributing to the collection of WorldCat, Chris Park has the majority of the records i.e. 9842 in number. Majority (1904075; 69.50%) of the research output comprises of articles, followed by book (38053; 1.38%) and encyclopedia articles consisting of 14057 in number (0.51%). Also, the maximum records of content available in the WorldCat comprises of Non-fiction types (2728597; 99.59%). This study is first of its kind to showcase the scholarly contribution in WorldCat in the field of Environmental Science. The results of this study provide an insight about the present Environmental Science related collection indexed in WorldCat and also provides scope for further research in other subject areas also indexed in the WorldCat.

Keywords: WorldCat, Database, Open access, Collection, Environmental Science

INTRODUCTION AND BACKGROUND

WorldCat is the world's largest catalog and renowned network of library content and services. WorldCat libraries are dedicated to providing access to their resources and data on the Web, where most people start their search for information and gain knowledge. It is operated by Online Computer Library Center, Inc (OCLC) which was founded in 1967 and is a worldwide library cooperative, owned, governed and sustained by the members. It was originally named as Ohio College Library Center. It connects libraries to manage, control and also share the world's knowledge and is dedicated to the values of librarianship through cooperation, resource sharing and public service (WorldCat.org). The service of WorldCat was started in 1971 with the addition of first bibliographic records to the OCLC Online Union Catalog, by OCLC staff at the Alden Library at Ohio University. OCLC began the "Open WorldCat" in 2003 with the pilot program. It provided the abbreviated records from the subset of WorldCat and was made available and accessible to its associate partner web sites and booksellers and thus increased the accessibility of the collection of member libraries. The web-based search facility was made available in 2006 by the WorldCat and thus became the most popular service in the world over the years now (**WorldCat, 2019**). WorldCat search the collections of libraries in our community and many more around the globe. One can search for popular books, journals, magazines, music CDs and videos all of the physical items you're used to getting from libraries. As we know that the scholarly communication process is more intensified with the open access movement worldwide (**Lynch, 2006**). Many new kinds of digital content, such as downloadable audiobooks can also be discovered through it. Article citations with links to their full text; authoritative research materials, such as documents and photos of local or historic significance and digital versions of rare items that aren't available to the public are also retrieved from the database of WorldCat. Even the resources are available in many languages because it aims at serving diverse communities in dozens of countries. It also lets us find an item of our interest and then locate a library which owns it and is nearer to us. With the help of WorldCat we can get access to various research articles as well as digital items that can be directly viewed or even downloaded for later use. By enabling libraries to share high-quality library metadata and bibliographic records with each other, WorldCat has helped librarians dramatically reduce the time they spend on original

cataloging. Also, WorldCat records are synchronized at intermittent intervals with the underlying library catalogs instead of real-time or every day (**Shackleton, 2018**).

Users access WorldCat(WorldCat.org) search the combined catalogs of more than 10,000 libraries worldwide, making WorldCat.org the single biggest place to find library materials on the Web. In addition to the multiple formats contributed through the WorldCat Digital Collection Gateway, WorldCat.org also includes more than 200 million article citations from many popular databases, including the following:

- OAIster
- JSTOR Archive
- Elsevier metadata
- Medline
- ERIC
- British Library Inside Serials
- ArticleFirst

WorldCat.org makes our library's resources more visible to information pursuers on a freely available database and websites where most people begin their research and exploration. This broad visibility promotes libraries as a vital information source and allows anyone to rapidly and easily access resources in libraries near or far (**Ross, 1993**).

WorldCat's relevance depends upon following four factors:

- Its scope, the extent to which it accurately and exactly reflects the full holdings of libraries, museums, archives and other records.
- Its timeliness and suitability
- The usefulness and worth of WorldCat records for end users and participating institutions
- The functionality and flexibility of OCLC systems and software which support access to and use of records and services.

Recognizing and spotting the importance of these factors, member institutions, partner organizations and OCLC work together to build and maintain WorldCat and to promote the responsible use of WorldCat and OCLC systems and services.

Member institutions, partner organizations and OCLC share a commitment to:

- Ensure the continuing viability of WorldCat and related services to libraries, museums, archives and the information community.
- Promote real and effective education and training in uses of OCLC systems and services.
- Disseminate this statement and related information to current and potential OCLC members and partner organizations as well.
- Identify and correct errors in contributed information and to avoid introducing duplicate data and records.

WorldCat Knowledge Base – With the changing time, the WorldCat knowledge base has come up which combines data with digital and electronic collections and have the features that provide access links to the e-content. This leads to more accurate and timely access to resources. The service also provide management of WorldCat holdings and delivery of WorldCat MARC records for all e- resources and materials. The service also ensures that the metadata and access links to the URLs of the e-content are continuously updated and monitored. The WorldCat has also come up with Integrated link resolution, Open URL resolution and A to Z list. Thus, facilitate faster, quicker and easy resource sharing of e-content with advanced and higher performance rates (**Karen and Patton, 2011**).

OBJECTIVES

The main purpose of the study is to analyze various aspects of the collection of libraries available in the field of Environmental Science registered in the WorldCat. Broadly, the present study aims:

- 1: To identify the top most format of collection of libraries in the Environmental Science research output.
- 2 To find out the most productive authors in Environmental Science Collection

3 To analyze the linguistic trends of the collection of records available in the field of Environmental Science.

4 To examine the research areas covered in the WorldCat collection pertaining to Environmental Science.

5 To identify the type of content as well as the type of audience pertaining to Environmental Science in the WorldCat collection.

METHODOLOGY

In the present study, online survey was used to collect the data for study. WorldCat, which is the world's largest bibliographic database and global union catalog was selected as the source for identification of the collection of libraries available worldwide in the field of Environmental Science. The relevant data were collected from the official website of WorldCat related to the Environmental Science during the time period of 10 to 15 May, 2019. The search term “Environmental Science” was used to download based on the string. A total of 2,739,562 records were downloaded for environmental science subject search term. The website was browsed through the various option reflected from the left side of homepage, enlisting various file formats, productive authors, research areas, language used, type of content and audience. Each browsing option was further checked to determine the top ten in various categories mentioned above in WorldCat maintains the record of all the artwork that is available in the collection. The data was collected, tabulated and analyzed as per the objectives. At last, the data was analyzed and discussed in the data analysis and interpretation.

DATA ANALYSIS AND INTERPRETATION

1: Format of Collection

A total of 20 format types are provided in WorldCat scholarly output. Table 1 reveals the top 10 document types as per the highest number of available records in the WorldCat collection pertaining to the field of Environmental Science. Majority (1904075; 69.50%) of the research output comprises of articles, followed by book (38053; 1.38%) and encyclopedia articles consisting of 14057 in number (0.51%). The document type like Journal and magazines comprises of 3781 in number (0.13%), computer files consists of 2351 which accounts for 0.08

percent. A meager percentage accounts for archival material, audiobook, image and interactive multimedia. The least number of available records is found in the game's category i.e. 11; 0.0004. Thus, it is depicted from the table that the highest number of document formats are related to the articles.

Table 1: Format of Collection

S.NO	FORMATS	RECORDS	PERCENTAGE
1.	Article	1904075	69.50
2.	Book	38053	1.38
3.	Encyclopedia article	14057	0.51
4.	Journal, magazine	3781	0.13
5.	Computer file	2351	0.08
6.	Archival material	696	0.02
7.	Audiobook	233	0.008
8.	Image	167	0.006
9.	Interactive multimedia	67	0.002
10.	Game	11	0.0004

2: Productive Authors

Table 2 represents the Top 10 contributing authors in the WorldCat collection pertaining to the field of Environmental Science. Among the top authors, Chris Park has published majority (9842; 0.35%) of the articles followed by the contribution from Oak Ridge National Laboratory (1528; 0.05%) and Cruse K (1163; 0.04%). The authors with the least number of records include Baumann Ursula, Illinois and Muller E with the numbers 638 (0.02%), 628 (0.02%) and 479 (0.01%) respectively.

Table 2: Productive Authors

S.NO	AUTHORS	RECORDS	PERCENTAGE
1.	Chris Park	9842	0.35
2.	Oak Ridge National Laboratory	1528	0.05
3.	Cruse K	1163	0.04
4.	Lawrence Berkeley National Laboratory	889	0.03
5.	Storm Dunlop	831	0.03
6.	Denk G	817	0.02
7.	Acker L	677	0.02
8.	Baumann Ursula	638	0.02
9.	Illinois	628	0.02
10.	Muller E	479	0.01

3: Language Usage

Table 3 reveals the Top 10 languages used in the WorldCat collection relating to the field of Environmental Science. English as a medium of communication has been used by the majority (2123542; 77.51%) of the articles followed by the ones written in German (87284; 3.18%). The languages with the least number of records include Spanish, French, Dutch and Russian with the numbers 3813 (0.13%), 3242 (0.11%), 1033 (0.03%) and 821 (0.02%) respectively.

Table 3: Language Usage

S.NO	LANGUAGE	RECORDS	PERCENTAGE
1.	English	2123542	77.51

2.	German	87284	3.18
3.	Undetermined	33773	1.23
4.	Chinese	14748	0.53
5.	Japanese	5830	0.21
6.	Korean	4598	0.16
7.	Spanish	3813	0.13
8.	French	3242	0.11
9.	Dutch	1033	0.03
10.	Russian	821	0.02

4: Type of content

Table 4 depicts the type of content available in the WorldCat database in the field of Environmental Science. The maximum records of content available in the WorldCat comprises of non-fiction types (2728597; 99.59%) followed by fiction (917; 0.03%) and biography (707; 0.02%).

Table 4: Type of content

S.NO	CONTENT	RECORDS	PERCENTAGE
1.	Fiction	917	0.03
2.	Non-Fiction	2728597	99.59
3.	Biography	707	0.02

5: Type of Audience

Table 5 reveals the type of audience which shows that the majority belongs to the Non-Juvenile with the records of 2726274 (99.51%) and the least being the Juvenile audience with records of 3240 (0.11%).

Table 5: Type of Audience

S.NO	AUDIENCE	RECORDS	PERCENTAGE
1.	Juvenile	3240	0.11
2.	Non-Juvenile	2726274	99.51

6 Research Areas Covered:

Table 6 represents the Top 10 research areas covered in the WorldCat collection pertaining to the field of Environmental Science. Among the top areas, majority (24472; 0.89%) belongs to Engineering and Technology areas followed by Government documents (20582; 0.75%) and Geography and Earth Sciences (18653; 0.68%). The areas with the least number of records include Sociology, Medicine, Education and Physical Sciences with the numbers 5910 (0.21%), 4958 (0.18%), 3984 (0.14%) and 3877 (0.14%) respectively.

Table 6: Research Areas Covered

S.NO	TOPICS	RECORDS	PERCENTAGE
1.	Engineering & Technology	24472	0.89
2.	Government Documents	20582	0.75
3.	Geography & Earth Sciences	18653	0.68

4.	Biological Sciences	13568	0.49
5.	Business & Economics	10440	0.38
6.	Agriculture	7163	0.26
7.	Sociology	5910	0.21
8.	Medicine	4958	0.18
9.	Education	3984	0.14
10.	Physical sciences	3877	0.14

CONCLUSION

WorldCat is a union catalog contains the collection of renowned libraries in different countries and territories participating in the Online Computer Library Center (OCLC) .It is a global cooperative is of immense importance for not only academicians, scholars, educators but for the common masses at large. In addition to the multiple formats contributed to the WorldCat Digital Collection Gateway, WorldCat.org also includes more than 200 million article citations from many popular databases. The findings of the study indicated that huge collection based on this particular subject was found in the database of WorldCat which accounted for 2,739,562 in number. Majority of the collection was in the format of articles pertaining to Environmental Science (1904075, 69.50%). Chris Park topped the contributing authors with the highest percentage of collections i.e. 9842 in number. English as a medium of communication has been used in the majority (2123542; 77.51%) of the articles. Among the top research areas related to Environmental Science, majority (24472; 0.89%) belonged to Engineering and Technology related areas followed by Government documents (20582; 0.75%) and Geography and Earth Sciences (18653; 0.68%). The areas with the least number of records included Sociology, Medicine, Education and Physical Sciences with the numbers 5910 (0.21%), 4958 (0.18%), 3984 (0.14%) and 3877 (0.14%) respectively. Needless to mention, WorldCat is the most beneficial and informative platform for general masses and should be used by all in order to update their

existing knowledge. Awareness regarding the use and accessibility of WorldCat should be made, so that more and more people get interested into it and contribute in a way to the society. Apart from English, which is the language for communicating the research findings or other articles in the field of Environmental Science, other languages should also be prioritized for filling the knowledge gap created due to language factor. Institutions especially from the developing part of the world, need to focus more on the various Environment related issues so that the problems associated with it can be brought to light from the developing spheres also.

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